## The Lobster Fishery.

#### Its Rapid Decline and the Steps Taken to Restore It.

By CHARLES MINOR BLACKFORD, M. D.

ware to Maine is the capture of the lobster. In New York, New Jersey and Delaware the industry is, and has always comparatively unimportant, employing in 1900 only 103 fishermen, whose eatch altogether was only 200,000 pounds, valued at \$27,960; but the condition is The fishery is prosecuted in all New England States except Verimont, and has been an important source but for many years the catch has been diminishing, and the condition became so serious that in 1898 the United States Commission of Fish and Fisheries underpecial inquiries into the status and of the industry. The necessity for n inquiry is readily seen by commeds of the industry. The necessity for such an inquiry is readily seen by comparing the statistics of a few recent years. In 1883 the catch was 30,449,503 pounds, which fell to 23,409,927 pounds in 1892, and to 14,028,845 pounds in 1902—a decline of more than 50 per cent, in thirteen years. Because of the lessened supply the price has advanced, so that the money value of the catch in 1902 was 31,271,962, as compared with \$833,736 in 1859; but this, in turn, points to a smaller number of consumers, as the high price is prohibitive to many would-be buyers. The high price is really a menace to the fadustry, as it conceals the true condition and makes the fisherman indifferent to the fate of the fishery. So long as their receipts are not lessened, or are even increased, it is hard to convenie those most interested that the animal on which it is based is on the

animal on which it is one of eve of extinction.

There are three main causes for the decline of the lobster fishery; the infrequency of the breeding periods, the slow rate of development and growth, and finally, reckless and itlegal fishing. The proper laws and their causement, rate of development and growth and finally, reckless and illegal fishing. The enactment of proper laws and their rigorous enforcement after enactment, would help to remedy the last cause, especially if steps were taken to instruct the fishermen and enlist their sympathy in having them carried out; but the other causes depend on physiological facts and biological laws, and their efforts are more difficult to overcome.

Ordinarily the lobster does not breed more frequently than once in two or three years, and the interval is often longer. The famile carries the eggs in bunches attaches to the small less called "swimmerets," for ten or elevant months after extrusion, and, if the season be unfavorable, as much as thirteen months may elapse before the eggs are hatched.

re hatched.
During this time the lobsters are said
o be "berried," and as berried lobsters
are esteemed particularly delicate, great
jumbers of them are captured in this there of them are captured in this litton for market—of course destroy-the coming brood. The extreme tefulness of this practice is evident, the protection of the berried lobs is an obvious step in preserving race. The eggs do not all latch at same time, but in the Wood's Hole on the hatching season extends from ut the middle of May to the first of to later. During this time the mother constantly swimming about, and, as young drop off as soon as hatched, s probable that the fry are widely. ing lobster comes from the

stributed. The young lobster comes from the gwith little or no resemblance to e adult in either form or habits. It was about almiessly or floats helpiesslon the surface, and is wafted by inds and currents to considerable dismoss. It grasps at particles of food, it has either no sense of danger or ability to protect liself, and as its light colors and notive motions make conspicuous, it is a prey for many the hungry inhabitants of the wars. It soon begins to undergo a series metamorphoses, and in three or four eeks it has become really a young beter, with pinching claws, a hard tell, and other characters of the adult, corresponding change takes place in a disposition and habits. It becomes rry pugnacious and is always ready to ght if disturbed in the least. It designs a series of danger and hides among to rocks, under seaweeds or even burters at the sand whom approached. its colors harmonize with the ddings, it is almost invisible. Its ents are quick and active, and in ways it is capable of taking care

movements are quick and active and in many ways it is capable of taking care of itself.

Each of these early stages of development is closed by molting, or throwing off the skin or shell that had covered it. Like most, if not all, of the crustiacea, this process is continued through, out life, though it becomes less frequent has age advances. While the fry are very young it is a severe drain on its wital energy, and after it occurs, the fry heipless. The molting periods are critical stages in the life of the lobster; death from natural causes is very common, and not those times its natural enemies find it defenceless and unable to escape. Indeed so many and so serious are the perils of the lobster's infancy that it is mafe to say that not one in a thousand is destined to reach maturity.

If the fry be kept in enclosed waters the dangers from natural enemies are as formidable as those that are avoided. The lobster comes into the world equipped with a voracious and almost insatiable appetite, and it is eager and ready to devour all of its weaker brethren that may come within reach. When exhausted by molting, the fry settle to the bottom of the enclosure in great masses. Those that first begin to regain strength promptly prey on the more exhausted ones, and the mortality is frighful, for those that escape being eaten have a very good chance of being suffocated. If these dangers be escaped there is another, equally perilous, from which no amount of health, strength or vigor seems to give protection. This is a vegetable growth that attacks them and is practically invariably fatal. It

days, it can be seen that death loss must be enormous.

To offset this loss by artificial culture is not only possible, but can be made a profitable industry. The first practical work in lobster culture was done in 1888, and since that time the United States Commission of Fish and Fisheries, cooperating with the States interested, has hatched and planted many hundreds of millions of fry from its marine stations at Wood's Hole and Gloucester, on the Massachusetts coast. In recent years the work of gathering brood lobsters has been thoroughly and systematically conducted. Each season for several months before the hatching time the whole New England coast is patrolled, and practically every egg-bearing lobster has been secured. By an arrangement with the State authorities, the fishermen hold the brood lobsters until an agent of the Commission (now the Bureau of Fisheries) can collect them, which he does by paying a price for them that is slightly above their market value.

The berried lobsters are sent to the

The berried lobsters are sent to the hatcherles where the eggs are removed and the Hobsters sent back to their points of capture to be set at liberty. Agents are also stationed at the places where lobsters are brought in from the Canadian provinces, and the eggs obtained from this source in some years execute to several millions.

Canadian provinces, and the eggs of tained from this source in some years amount to soveral millions.

By the time the bulk of the eggs reach the stations, the time for hatching is close at hand. All that is næeded is an ample supply of sea water, but with the appearance of the larvae, troubler bogins. The fearlier experimenters tried all soris of receptacles for the frewooden tanks and tanks of when netting, some with gravel bottoms and some partly filled with sand; glass aquaria, stone aquaria, deep and shallow; cars of serin cloth sunk deep in the water or floating at the surface—all were tried without success. The fry seemed to get on finely until the time for the first molt, and then they died in great numbers. This mortality was repeated at each succeeding molt, and rarely could more than half a dozen survivers be had, no matter what the original number might have been.

At last serim bags, 8 feet long, 4 feet

no matter what the original number might have been.

At last serim bags, 8 feet long, 4 feet wide and 4 feet deep, were tried. The top of the bag was fastened to a frame of wood floating on the water, and the bottom was kept submerged by sinkers. The tides and the winds kept the water in motion, and made the loose sides flap back and forth, creating a constant circulation, and preventing the fry from sinking to the bottom. It was found that this circulation is essential, a calm of even a few hours being fatal, so the next step was to provide some means of keeping the water agitated. Mr. George II. Sherwood, of Brown University, was invited by the Rhode Island Commission of Inland Fisherles to conduct some experiments to this end at its floating laboratory at Wickford, R. L. and in April, 1901, he went there for that purpose, He devised a rearing pen that consists of a series of scrim bags, cylinseles and supported by a

drient in shape and supported by a wooden frame. In the lower part of each bag he placed a two-bladed fan or propeller on a vertical shaft that was connected to a horizontal shaft above the "well." This shaft he rotated by a gasoline engine, and the whirling frans made a current in the bags from bottom to top. As soon as this arrangement was put into operation the death-rate declined, and in his earlier experiments the average percentage of larvae that reached the lobsterling stage rose to 27.25, and in one case it was over fifty.

This difficulty having been surmounted, the food problem demanded attention. The rapidity of the growth of, the young lobster depends largely on two factors—the temperature, of the water, and the abundance of suitable food. Other things being equal, the colder the water the slower the development, and vice versa, but this is a matter that is practically beyond centrol. Nourishment is within control, however, and is of great importance, for poorly nourished fry will remain in the larval stage for three or four weeks, even if they should live so long. Hunger also leads to cannibalism, and that means a heavy loss, so great care should be taken that the fry lave abundant food. After many trials it was found that the olly flesh of the menhaden fulfilled every requirement. The fish were run, through, an ordinary grinder, and the minced flesh thrown

most insatiable appetite, and it is eager and ready to devour all of its weaker brethren that may come within reach. When exhausted by molting the fry settle to the bottom of the enclosure in great masses. Those that first begin to regain strength promptly prey on the more exhausted ones, and the mortality is frightful, for those that the escape being eaten have a very good chance of being suffocated. If these dangers be escaped there is another, equally perilous, from which no amount of bealth, strength or vigor seems to give protection. This is a vegetable growth that attacks them and is practically invariably fatal. It is one of the common, water plants called diatoms, and it grows on even the most active and healthy fry in such quantities that they look like little balls of chenile; and those so affected become sluggish and inactive, refuse all food, and finally sink to the bottom and die.

Among the natural enemies of the lobster in its larvel stages, the most destructive are the small fishes that are so minerous along the shore.

Cunners, minnows, tautog and lomood are probably responsible for the immediate destruction of thousands of fry, for the active, light-colored larva is a most rempting morsel. In 1892, at the lobster hatchery at Wood's Hole, as many as fifty minnows and cunners were counted around a bag of fry that was being emptied, and it was noticed that the fishes picked up the living fry before touching those that were dead. In one case a bag had heen immersed overangth to be emptied in the morning, and he single mummichog got in through a large marmed and some trade in an extending the share continued in the morning and long the share continued to the morning that the morning and long the share continued to the share continued to the share continued to the share continued to the share continued

the world, gives it as his experience that American salesmen succeed best with the machinery of his concern—much better than foreign agents. It is no reflection on the foreign releasment to say that he has his own preconceived notions of how machinery should be sold, that these notions are not easily changed, and that they seem not to fit themselves readily to the American mower and harvester and to other branches of American trade. One needs but to attend any of the large agricultural fairs in a foreign country to see how much more at home with American machinery are American agents than are the foreign agents. An American salesman yielding his bed at a crowded hotel in Germany to a writer whe reported the matter in the papers, with the expianation that in certain parts of his territory he was in the habit of sleeping outdoors on the plaiform of a harvester and would not miss his bed, gave in his explanation a partial clue to why the American agent is superior.

## ABINGDON ACTIVE.

#### The Standard Oil Works Scheme to Avoid License.

(Special to The Times-Dispatch.)
ABINGDON, VA., May 19.—Judge Hutton has appointed Alaxander Stuart to fill the vacancy on the Ablington dispensary toard, caused by the resignation of Judge R. M. Page.

If. H. Scott has begun the erection of a large business house on the lot recently purchased from James L. White. The Bristol Telephone Company, which ownes the system here, has been miking many improvements preparatory to putting in a new switch board and furnishing an all night sevice.

The Standard Oil Company recently got the merchants of Ablingdon to sign a paper requesting the company's wagons

the merchants of Abingdon to sign a paper requesting the company's wagon to deliver oil to their stores at states to deliver oil to their stores at stated periods during the coming year. The object of this move is to keep the company from paying additional license tax.

United States District Court is in session here. Very little has been done except the trial of some unimportant violations of the revenue law.

The case of Dr. Bruce Clark, of Pulaski county, against the Bertia Mineral Company, for six thousand dolars damages, has been on trial for several days.

W. F. Roberson is erecting a large warehouse on his lot just west of the Norfolk and Western depot.

#### TRADE IN RICHMOND.

#### Retail Business Somewhat Dcpressed-Collections Not Good.

The Bradstreet Company reports that the Richmond market for agricultural implements and vehicles is active and shows largely increased sales over previous years; the same is true with the harness and leather market. In this line some dealers have more orders than they can fill, owing to the secrety and high

prices of leather.

The tobacco market continues strong with high prices and good demand for all grades.

Produce is scarce and high; this is due partially to the recent cold weather which has retarded the ripening of vegetables and in some sections the crop is considerable to the recent. siderably injured.

### Prosperous Year for Manufac-

The manufacturing industries of the nation were unusually prosperous last year, and predictions are general that they will be still more prosperous tills year. Reports from Chicago and other Western cities are to the effect that up to the present time business is 5 to 15 per cent, ahead of last year's large aggregate and willing reports come from the per cent. ahead of last year's large aggregate, and similar reports come from the East. The weather enabled the spring business to begin two weeks earlier than usual. The farmers did so well last year that they buy more liberally, and consumption has increased, according to the reports from all sections. The foreign trade should also show a relative increase. Imports at New York since January ist have been greater than for the corresponding time in any other year excepting 1905, when they were slightly above the figures of this year. Exports also make a good showing.

#### Manganese Lease.

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(Special to The Times-Dispatch.)

STAUNTON, VA., May 19.—A lease has been recorded in the county clerk's office which is of much interest to a number of Staunton and Augusta, county people. The Augusta Manganese Company has leased to Messrs. J. W. Brower, of Staunton, and H. C. Shurpe, of Pittsburg, Pu., all their interest in the ore ming and water rights in a tract of 445 acres of mineral land in Augusta county, under the conditions that the lessees pay to the company a royalty of \$1.50 per ton of manganese mined for the first thirty thousand tons, and \$1.60 per ton for all ore mined over and above thirty thousand tons. Messrs. Brower & Sharpe will commence mining operations anoul september ist. They also have the privilege of buying the land within two years from this date at the price of afty thousand dollars. The lands leased contain very valuable ore, and adjoin the property of the famous Cri-mora manganese mines. about September 1st.

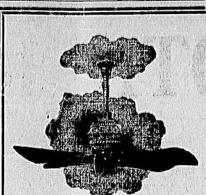
#### American Goods in Manchuria.

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Consul-General Sammons writes from Newchwang on the shipping returns of Manchuria for 1905 as follows:

While the total foreign commerce of Newchwang, amounting to \$53,293,607 gold for 1905, was approximately \$10,000,000 gold in excess of the previous banner year of 1899, the total registered tomage of 1,182,032 tons, not including the junk tonnage of 500,000 tons, was not materially heavier than that employed in other years to move cargoes worth less. Higher prices of bean cake and other merchandise increased value without adding to the carrying capacity required.

America's share in the foreign imports for 1905 were important, being 60 per cent, of the whole, which approximated \$22,000,000 gold. Of this over \$0,000,000 gold is represented by exiton goods, and yet not a pound of the products of American cotton mills comes direct to Newchwang or in American bottoms. Although American flour, lumber and kerosene oil were shipped direct to Newchwang from ports of the United States, no cargoes were available in return.



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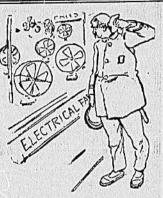
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